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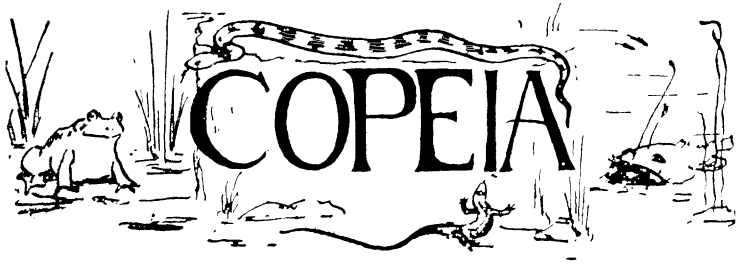

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THE ESTABLISHMENT OF THE SMELT IN GREAT LAKES WATERS

We have learned this spring that the smelt (*Osmerus mordax*) has become established in some of the waters of the Great Lakes region, and write this note to call attention to the fact. Our first news on the subject was contained in the following account, which appeared in the Detroit Free Press for April 7, 1922.

SPAWNING FISH LURE FRANKFORT FARMERS

Special to the Free Press

Frankfort, Mich., April 6,—Many people from here are driving to Beulah to get some of the myriads of fish that are coming out of Crystal Lake and going up the Cold Creek there to spawn. The Beulah farmers are catching them by the thousands. They haul them home in wagon loads. What they do not eat they use for fertilizer. They catch them with dip nets and many of them use a common burlap sack as a scoop. They are an unknown variety, and look exactly like a herring about the only difference is that they have a row of teeth on their tongues which a herring has not. Specimens have been sent to the state commission to be classified.

The account is doubtless authentic, and the fish referred to is unquestionably *Osmerus mordax*. The planting of 16,400,000 smelt eggs in this Crystal Lake, exactly ten years prior to the date of the news dispatch just quoted, is recorded in the Twentieth

Biennial Report of the State Board of Fish Commissioners of Michigan (1913, p. 107).

On May 15 each of us received from the State Department of Conservation (of Michigan), for identification, a dried specimen of the smelt, from Grand Traverse Bay. The accompanying letters stated that the new fish had appeared in abundance in this Bay, which is a long arm of Lake Michigan. About the same time Dr. John N. Lowe, sent in a similar fish from the same region. These Grand Traverse Bay schools are probably the result of plantings made in waters tributary to the Bay, and recorded in the reports of the U. S. Commissioner of Fisheries for 1915 and 1916, and in the Michigan report referred to above.

The introduction of smelt into the waters of the Great Lakes was apparently due largely to the recommendations and efforts of Seymour Bower, who wrote as follows in 1909.[1]

> A small consignment of smelt eggs from New England waters was received at the Soo hatchery last spring and deposited in the St. Mary's River. This initial effort should be repeated for a number of years; or perhaps a better plan would be to transfer a carload or more of the adult fish from their native waters in New England. It is quite probable that this work would be taken up by the Bureau of Fisheries on application and proper presentation of its potential importance. The introduction of fresh water smelt to serve as a specially desirable source of food supply for the adult salmon and other predaceous but valuable food fish is strongly indicated and recommended.

The subsequent distribution of smelt eggs in Michigan by the Bureau of Fisheries is recorded in the Reports of the U. S. Commissioner of Fisheries for 1909, 1912, 1914, 1915 and 1916.

It appears that the smelt is now well established in Great Lakes waters. Whether it will equal or exceed the hopes of those who have introduced it, or become disastrous to some of the original fisheries,

[1] Seventeenth Biennial Report of the State Board of Fish Commisioners (Michigan) for fiscal years 1905 and 1906 (1909), p. 13.

remains to be seen. To watch the progress of the experiment will be very interesting.

T. L. HANKINSON,
Ypsilanti, Mich.
CARL L. HUBBS,
Ann Arbor, Mich.

YOUNG *HEMICARANX* AND FLORIDA *APOGON*.

Hemicaranx amblyrhynchus. Large Hemicaranx are rare, but Mr. L. L. Mowbray has found the young common, swimming under medusæ, and his recent collections contain 8 specimens so taken off Miami Beach, Florida, December 27, 1921, measuring from 22 to 58 mm. in length to base of caudal. They are marked with 5 broad vertical blackish bands, have dorsal, anal and ventral fins blackish, and resemble rather closely three somewhat larger (78 to 86 mm.) specimens of *Hemicaranx marginatus* from Banana, West Africa, August, 1915 (American Museum Congo Expedition). Though notably deeper than the adult of *H. amblyrhynchus,* their fin count (dorsal soft rays 27 to 29, anal 24 to 25) agrees with that species, which they should be, and they are referred to it.

Depth in length (to base of caudal) increases with the size of the specimen from 2.5 (one of 28 mm.) to 2.1 (one of 43 and of 58). Head and eye decrease respectively 2.5 to 3.1 (in length), 3.0 to 3.8 (in head). The curved portion of the lateral line becomes shorter, its chord 1.9 to 2.4 in straight part; and deeper, its depth 3.0 to 2.5 in chord. The reentrance of the caudal, which is only slightly concave in the 22 mm., deepens to moderately forked in the 58 mm. specimen.

Apogon. In twelve specimens of *Apogon* from Miami, Florida, 40 to 63 mm. in standard length (to